FIGURE 1.

Ammonifex degensii KC4 Phosphatase (3A1A=3A2A)
Complete gene sequence

```
    ATGAGGGGGAGCGGAGTGCGGATACTTCTCACCAACGATGACGGCATCTTTGCCGAGGGT
1   MetArgGlySerGlyValArgIleLeuLeuThrAsnAspAspGlyIlePheAlaGluGly

    CTGGGGGCTCTGCGCAAGATGCTGGAGCCCGTGGCTACCCTTTACGTGGTGGCTCCGGAC
21  LeuGlyAlaLeuArgLysMetLeuGluProValAlaThrLeuTyrValValAlaProAsp

    CGAGAGCGTAGCGCGGCCAGCCATGCTATCACCGTTCACCGCCCCCTGCGGGTGCGGGAG
41  ArgGluArgSerAlaAlaSerHisAlaIleThrValHisArgProLeuArgValArgGlu

    GCGGGTTTTCGCAGCCCCAGGCTTAAAGGCTGGGTAGTGGACGGTACCCCGGCCGACTGC
61  AlaGlyPheArgSerProArgLeuLysGlyTrpValValAspGlyThrProAlaAspCys

    GTCAAGCTGGGCCTGGAGGTACTTTTGCCCGAACGTCCAGATTTCCTGGTTTCGGGCATA
81  ValLysLeuGlyLeuGluValLeuLeuProGluArgProAspPheLeuValSerGlyIle

    AACTACGGGCCCAACCTGGGTACCGACGTACTTTACTCCGGCACCGTCTCGGCGGCCATA
101 AsnTyrGlyProAsnLeuGlyThrAspValLeuTyrSerGlyThrValSerAlaAlaIle

    GAAGGGGTAATTAACGGCATTCCCTCGGTGGCCGTATCTTTGGCCACGCGGCGGGAGCCG
121 GluGlyValIleAsnGlyIleProSerValAlaValSerLeuAlaThrArgArgGluPro

    GACTATACCTGGGCGGCCCCGGTTCGTCCTGGTCCTGCTGGAGGAACTGCGAAAACACCAA
141 AspTyrThrTrpAlaAlaArgPheValLeuValLeuLeuGluGluLeuArgLysHisGln

    CTGCCCCCAGGAACCCTGCTCAACGTCAACGTGCCCGACGGGGTGCCCCGCGGGGTCAAG
161 LeuProProGlyThrLeuLeuAsnValAsnValProAspGlyValProArgGlyValLys

    GTGACCAAACTGGGAAGCGTACGCTACGTCAACGTGGTAGACTGCCGCACCGACCCTCGG
181 ValThrLysLeuGlySerValArgTyrValAsnValValAspCysArgThrAspProArg

    GGGAAGGCTTACTACTGGATGGCGGGAGAACCATTGGAGCTGGACGGCAACGACTCCGAA
201 GlyLysAlaTyrTyrTrpMetAlaGlyGluProLeuGluLeuAspGlyAsnAspSerGlu

    ACCGACGTCTGGGCGGTGCGAGAAGGCTATATTTCCGTAACACCGGTCCAGATCGACCTT
221 ThrAspValTrpAlaValArgGluGlyTyrIleSerValThrProValGlnIleAspLeu

    ACTAACTACGGCTTCCTGGAAGAACTCAAAAAATGGCGTTTCAAGGATATCTTTTCTTCT
241 ThrAsnTyrGlyPheLeuGluGluLeuLysLysTrpArgPheLysAspIlePheSerSer

    TAA
261 End  261
```

FIGURE 2

Methanococcus igneus Kol5 Phosphatase (9A1A)
Complete Gene Sequence

```
    ATGTTGGATATACTGCTTGTTAATGATGATGGCATTTATTCAAATGGATTAATAGCTTTG
1   MetLeuAspIleLeuLeuValAsnAspAspGlyIleTyrSerAsnGlyLeuIleAlaLeu

    AAGGATGCATTATTGGAAAAATTTAATGCGAGGATTACTATTGTAGCCCCAACAAATCAG
21  LysAspAlaLeuLeuGluLysPheAsnAlaArgIleThrIleValAlaProThrAsnGln

    CAGAGTGGTATTGGTAGGGCAATAAGTTTATTCGAGCCGTTAAGGATAACTAAAACCAAA
41  GlnSerGlyIleGlyArgAlaIleSerLeuPheGluProLeuArgIleThrLysThrLys

    TTAGCAGATGGTTCTTGGGGATATGCAGTTTCAGGAACCCCAACAGATTGCGTTATATTG
61  LeuAlaAspGlySerTrpGlyTyrAlaValSerGlyThrProThrAspCysValIleLeu

    GGCATTTATGAGATATTAAAGAAGGTACCTGATGTAGTTATATCAGGAATAAACATTGGA
81  GlyIleTyrGluIleLeuLysLysValProAspValValIleSerGlyIleAsnIleGly

    GAAAACCTTGGGACTGAAATAACAACTTCTGGAACGTTGGGGGCTGCGTTTGAAGGGGCC
101 GluAsnLeuGlyThrGluIleThrThrSerGlyThrLeuGlyAlaAlaPheGluGlyAla

    CATCATGGGGCTAAGGCATTAGCATCATCACTCCAAGTTACCTCTGACCATCTAAAGTTT
121 HisHisGlyAlaLysAlaLeuAlaSerSerLeuGlnValThrSerAspHisLeuLysPhe

    AAAGAGGGGGAGACCCCAATAGACTTCACAGTCCCAGCAAGAATTACTGCAAATGTTGTT
141 LysGluGlyGluThrProIleAspPheThrValProAlaArgIleThrAlaAsnValVal

    GAGAAGATGTTGGATTATGATTTCCCATGTGATGTCGTCAACTTAAACATTCCAGAAGGA
161 GluLysMetLeuAspTyrAspPheProCysAspValValAsnLeuAsnIleProGluGly

    GCAACAGAAAAGACACCGATTGAAATCACAAGGTTGGCAAGGAAAATGTATACAACACAC
181 AlaThrGluLysThrProIleGluIleThrArgLeuAlaArgLysMetTyrThrThrHis

    GTTGAGGAAAGAATAGATCCAAGAGGGAGGAGTTATTATTGGATTGATGGGTATCCTATT
201 ValGluGluArgIleAspProArgGlyArgSerTyrTyrTrpIleAspGlyTyrProIle

    TTAGAGGAAGAGGAAGACACTGATGTCTATGTTGTTAGAAGAAAGGGACATATTTCTCTA
221 LeuGluGluGluGluAspThrAspValTyrValValArgArgLysGlyHisIleSerLeu

    ACCCCATTAACATTAGACACAACAATTAAAAATTTAGAGGAATTTAAGAAAAAATATGAG
241 ThrProLeuThrLeuAspThrThrIleLysAsnLeuGluGluPheLysLysLysTyrGlu

    AGAATATTAAATGAATGA
261 ArgIleLeuAsnGluEnd  266
```

FIGURE 3

Thermococcus alcaliphilus AEDII12RA Phosphatase (18A)
Complete Gene Sequence

```
    ATGATGATGGAATTCACTCGCGAGGGAATAAAAGCTGCTGTAGAGGCACTTCAAGGGTTA
1   MetMetMetGluPheThrArgGluGlyIleLysAlaAlaValGluAlaLeuGlnGlyLeu

    GGAGAGATCTACGTAGTTGCCCCAATGTTTCAAAGGAGCGCAAGTGGAAGGGCAATGACC
21  GlyGluIleTyrValValAlaProMetPheGlnArgSerAlaSerGlyArgAlaMetThr

    ATCCACAGACCTCTAAGGGCTAAAAGAATAAGTATGAACGGTGCAAAAGCAGCCTATGCT
41  IleHisArgProLeuArgAlaLysArgIleSerMetAsnGlyAlaLysAlaAlaTyrAla

    TTGGATGGAATGCCCGTTGATTGCGTTATCTTTGCCATGGCCAGATTTGGAGATTTCGAC
61  LeuAspGlyMetProValAspCysValIlePheAlaMetAlaArgPheGlyAspPheAsp

    CTTGCAATAAGTGGTGTAAACTTGGGAGAAAACATGAGCACCGAGATAACGGTTTCCGGG
81  LeuAlaIleSerGlyValAsnLeuGlyGluAsnMetSerThrGluIleThrValSerGly

    ACTGCAAGCGCTGCAATAGAGGCTGCAACCCAAGAGATCCCAAGCATTCCCATAAGCCTG
101 ThrAlaSerAlaAlaIleGluAlaAlaThrGlnGluIleProSerIleProIleSerLeu

    GAAGTTAATAGAGAAAAACACAAATTTGGTGAGGGCGAAGAGATTGACTTCTCAGCTGCC
121 GluValAsnArgGluLysHisLysPheGlyGluGlyGluGluIleAspPheSerAlaAla

    AAGTATTTCCTAAGAAAAATCGCAACGGCGGTTTTAAAGAGAGGCCTCCCCAAAGGAGTC
141 LysTyrPheLeuArgLysIleAlaThrAlaValLeuLysArgGlyLeuProLysGlyVal

    GATATGCTGAACGTCAACGTCCCTTATGATGCAAATGAAAGGACAGAGATAGCTTTTACT
161 AspMetLeuAsnValAsnValProTyrAspAlaAsnGluArgThrGluIleAlaPheThr

    CGCCTGGCAAGAAGGATGTATAGGCCTTCTATTGAAGAGCGCATAGACCCAAAGGGGAAT
181 ArgLeuAlaArgArgMetTyrArgProSerIleGluGluArgIleAspProLysGlyAsn

    CCCTACTACTGGATAGTTGGAACTCAGTGCCCTAAGGAGGCATTAGAGCCGGGAACGGAT
201 ProTyrTyrTrpIleValGlyThrGlnCysProLysGluAlaLeuGluProGlyThrAsp

    ATGTATGTAGTTAAAGTTGAGAGAAAAGTTAGCGTGACTCCAATAAACATTGATATGACA
221 MetTyrValValLysValGluArgLysValSerValThrProIleAsnIleAspMetThr

    GCAAGAGTGAATTTAGACGAGATTAAAAGACTTTTAGAACTGTAG
241 AlaArgValAsnLeuAspGluIleLysArgLeuLeuGluLeuEnd  255
```

FIGURE 4

Thermococcus celer Phosphatase (25A1A)
Complete Gene Sequence

```
       ATGAGAACCCTGACAATAAACACTGACGCGGAGGGGTTCGTTTTGAGGATTCTCCTGACG
     1 MetArgThrLeuThrIleAsnThrAspAlaGluGlyPheValLeuArgIleLeuLeuThr   20

       AACGACGATGGAATCTACTCCAACGGACTGCGCGCCGCTGTGAAAGCCCTGAGTGAGCTC
    21 AsnAspAspGlyIleTyrSerAsnGlyLeuArgAlaAlaValLysAlaLeuSerGluLeu   40

       GGCGAAGTTTACGTCGTTGCCCCCCTCTTCCAGAGGAGCGCGAGCGGCAGGGCCATGACG
    41 GlyGluValTyrValValAlaProLeuPheGlnArgSerAlaSerGlyArgAlaMetThr   60

       CTCCACAGGCCGATAAGGGCCAAGCGCGTTGACGTTCCCGGCGCAAAGATAGCCTACGGA
    61 LeuHisArgProIleArgAlaLysArgValAspValProGlyAlaLysIleAlaTyrGly   80

       ATAGATGGAACTCCTACTGACTGCGTGATTTTCGCCATAGCCCGCTTCGGGAGCTTTGGT
    81 IleAspGlyThrProThrAspCysValIlePheAlaIleAlaArgPheGlySerPheGly  100

       TTAGCCGTGAGCGGGATTAACCTCGGCGAGAACCTGAGCACCGAGATAACAGTCTCAGGG
   101 LeuAlaValSerGlyIleAsnLeuGlyGluAsnLeuSerThrGluIleThrValSerGly  120

       ACGGCCTCCGCTGCCATAGAGGCCTCAACTCATGGAATTCCGAGCATAGCGATTAGCCTT
   121 ThrAlaSerAlaAlaIleGluAlaSerThrHisGlyIleProSerIleAlaIleSerLeu  140

       GAGGTGGAGTGGAAGAAGACCCTCGGCGAGGGTGAGGGGGTTGACTTCTCGGTCTCGACT
   141 GluValGluTrpLysLysThrLeuGlyGluGlyGluGlyValAspPheSerValSerThr  160

       CACTTCCTCAAGAGAATCGCGGGAGCCCTCTTGGAGAGAGGTCTTCCTGAGGGCGTTGAC
   161 HisPheLeuLysArgIleAlaGlyAlaLeuLeuGluArgGlyLeuProGluGlyValAsp  180

       ATGCTCAACGTCAACGTTCCGAGCGACGCGACGGAGGAAACGGAGATAGCAATCACCCGC
   181 MetLeuAsnValAsnValProSerAspAlaThrGluGluThrGluIleAlaIleThrArg  200

       TTAGCCCGGAAGCGCTACTCCCCAACGGTCGAGGAGAGGATTGACCCCAAGGGCAACCCC
   201 LeuAlaArgLysArgTyrSerProThrValGluGluArgIleAspProLysGlyAsnPro  220

       TACTACTGGATTGTCGGCAAACTTGTCCAAGACTTCGAGCCAGGGACAGATGCCTACGCC
   221 TyrTyrTrpIleValGlyLysLeuValGlnAspPheGluProGlyThrAspAlaTyrAla  240

       CTGAAGGTCGAGAGGAAGGTCAGCGTCACGCCGATAAACATAGATATGACTGCGAGGGTG
   241 LeuLysValGluArgLysValSerValThrProIleAsnIleAspMetThrAlaArgVal  260

       GACTTTGAGGAGCTTGTAAGGGTTCTGTGGGTGTAA
   261 AspPheGluGluLeuValArgValLeuTrpValEnd  272
```

FIGURE 5A

Thermococcus GU5L5 Phosphatase (26A1A)
Complete Gene Sequence (Part 1 of 2)

```
       ATGAAAGGAAAGTCTCTTGTTAGCGGTCTGTTGTTGGGTCTTTTAATTTTGAGCCTGATT
     1 MetLysGlyLysSerLeuValSerGlyLeuLeuLeuGlyLeuLeuIleLeuSerLeuIle    20

       TCATTCCAGCCAAGCTTTGCATACTCCCCACACGGCGGTGTCAAAAACATCATAATCCTG
    21 SerPheGlnProSerPheAlaTyrSerProHisGlyGlyValLysAsnIleIleIleLeu    40

       GTTGGAGACGGCATGGGTCTTGGGCATGTAGAAATTACAAAGCTCGTTTATGGACACTTA
    41 ValGlyAspGlyMetGlyLeuGlyHisValGluIleThrLysLeuValTyrGlyHisLeu    60

       AACATGGAAAACTTTCCAGTTACTGGATTTGAGCTTACTGATTCCCTAAGTGGTGAAGTT
    61 AsnMetGluAsnPheProValThrGlyPheGluLeuThrAspSerLeuSerGlyGluVal    80

       ACAGATTCTGCTGCGGCAGGAACTGCAATATCCACTGGAGCTAAAACGTATAATGGTATG
    81 ThrAspSerAlaAlaAlaGlyThrAlaIleSerThrGlyAlaLysThrTyrAsnGlyMet   100

       ATTTCAGTAACCAACATAACCGGAAAGATAGTTAACTTAACAACCCTACTTGAAGTGGCT
   101 IleSerValThrAsnIleThrGlyLysIleValAsnLeuThrThrLeuLeuGluValAla   120

       CAAGAGCTTGGGAAGTCAACAGGGCTGGTCACCACAACAAGGATTACCCATGCAACTCCA
   121 GlnGluLeuGlyLysSerThrGlyLeuValThrThrThrArgIleThrHisAlaThrPro   140

       GCAGTTTTTGCGTCCCATGTCCCAGATAGGGATATGGAGGGGGAGATACCCAAGCAACTC
   141 AlaValPheAlaSerHisValProAspArgAspMetGluGlyGluIleProLysGlnLeu   160

       ATAATGCACAAAGTTAACGTCTTGTTGGGTGGTGGAAGGGAGAAATTCGATGAGAAAAAT
   161 IleMetHisLysValAsnValLeuLeuGlyGlyGlyArgGluLysPheAspGluLysAsn   180

       TTGGAGCTGGCCAAAAAGCAGGGATACAAAGTAGTTTTCACGAAGGAAGAGCTTGAAAAA
   181 LeuGluLeuAlaLysLysGlnGlyTyrLysValValPheThrLysGluGluLeuGluLys   200

       GTTGAAGGAGATTATGTCCTAGGACTCTTTGCAGAAAGTCACATCCCTTACGTATTGGAT
   201 ValGluGlyAspTyrValLeuGlyLeuPheAlaGluSerHisIleProTyrValLeuAsp   220

       AGAAAACCCGATGATGTTGGACTTTTAGAAATGGCCAAAAAGGCAATTTCAATACTCGAG
   221 ArgLysProAspAspValGlyLeuLeuGluMetAlaLysLysAlaIleSerIleLeuGlu   240

       AAGAACCCGAGCGGATTCTTTCTCATGGTTGAGGGCGGAAGGATTGACCATGCAGCCCAT
   241 LysAsnProSerGlyPhePheLeuMetValGluGlyGlyArgIleAspHisAlaAlaHis   260

       GGAAACGATGTCGCATCGGTTGTTGCAGAAACTAAGGAGTTTGACGATGTTGTCAGATAC
   261 GlyAsnAspValAlaSerValValAlaGluThrLysGluPheAspAspValValArgTyr   280

       GTGCTGGAATATCCGAAGAAGAGGGGAGATACCTTGGTAATAGTGCTTGCCGATCACGAA
   281 ValLeuGluTyrProLysLysArgGlyAspThrLeuValIleValLeuAlaAspHisGlu   300

       ACTGGAGGTCTTGCAATAGGTCTAACGTATGGAAATGCAATCGATGAAGATGCCATAAGA
   301 ThrGlyGlyLeuAlaIleGlyLeuThrTyrGlyAsnAlaIleAspGluAspAlaIleArg   320

       AAAATAAAAGCAAGCACGTTGAGGATGCCCAAAGAGGTTAAGGCAGGGAGTAGTGTAAAA
   321 LysIleLysAlaSerThrLeuArgMetProLysGluValLysAlaGlySerSerValLys   340
```

FIGURE 5B

Thermococcus GU5L5 Phosphatase (26A1A)
Complete Gene Sequence (Part 2 of 2)

```
      GAGTCCTCAAAGGTATGCCGGATTTGTCCCAACAGAGGAAGAAGTCAGTATATTGAGAAT
341   GluSerSerLysValCysArgIleCysProAsnArgGlyArgSerGlnTyrIleGluAsn   360

      GCGCTGCACTCGACAAACAAGTATGCCCTCTCAAATGCAGTAGCCGATGTTATAAACAGG
361   AlaLeuHisSerThrAsnLysTyrAlaLeuSerAsnAlaValAlaAspValIleAsnArg   380

      CGTATTGGTGTTGGATTCACCTCCTATGAGCATACAGGAGTTCCAGTTCCGCTCTTAGCT
381   ArgIleGlyValGlyPheThrSerTyrGluHisThrGlyValProValProLeuLeuAla   400

      TACGGTCCCGGGGCAGAGAACTTCAGAGGTTTCTTACACCATGTGGATACAGCAAGATTA
401   TyrGlyProGlyAlaGluAsnPheArgGlyPheLeuHisHisValAspThrAlaArgLeu   420

      GTTGCAAAGTTAATGCTCTTTGGAAGGAGGAATATTCCAGTTACCATTTCAAGCGTGAGC
421   ValAlaLysLeuMetLeuPheGlyArgArgAsnIleProValThrIleSerSerValSer   440

      AGTGTTAAGGGAGACATAACCGGTGATTACAGGGTTGATGAGAAGGATGCCTACGTTACG
441   SerValLysGlyAspIleThrGlyAspTyrArgValAspGluLysAspAlaTyrValThr   460

      CTCATGATGTTTCTCGGAGAAAAAGTGGATAATGAAATTGAAAAGAGAGTCGATATAGAC
461   LeuMetMetPheLeuGlyGluLysValAspAsnGluIleGluLysArgValAspIleAsp   480

      AACAACGGCATGGTTGACTTAAATGACGTCATGTTGATTCTCCAGGAAGCTTGA
481   AsnAsnGlyMetValAspLeuAsnAspValMetLeuIleLeuGlnGluAlaEnd   498
```

FIGURE 6A

OC9a Phosphatase (27A3A)
Complete Gene Sequence (Part 1 of 2)

```
       ATGCCAAGAAATATCGCCGCTGTATGCGCCCTGGCCGCTTTGTTAGGGTCGGCCTGGGCG
  1    MetProArgAsnIleAlaAlaValCysAlaLeuAlaAlaLeuLeuGlySerAlaTrpAla   20

       GCCAAAGTTGCCGTCTACCCCTACGACGGAGCCGCTTTGCTGGCGGGGCAGCGCTTCGAT
 21    AlaLysValAlaValTyrProTyrAspGlyAlaAlaLeuLeuAlaGlyGlnArgPheAsp   40

       TTGCGCATAGAAGCCTCCGAGCTGAAAGGCAATTTAAAGGCTTACCGCATCACCCTGGAC
 41    LeuArgIleGluAlaSerGluLeuLysGlyAsnLeuLysAlaTyrArgIleThrLeuAsp   60

       GGCCAGCCTCTGGCGGGCCTCGAGCAAACCGCGCAGGGGGCCGGGCAGGCCGAGTGGACC
 61    GlyGlnProLeuAlaGlyLeuGluGlnThrAlaGlnGlyAlaGlyGlnAlaGluTrpThr   80

       CTGCGCGGTGCCTTCCTGCGCCCTGGAAGCCACACCCTCGAGGTCAGCCTCACCGACGAC
 81    LeuArgGlyAlaPheLeuArgProGlySerHisThrLeuGluValSerLeuThrAspAsp  100

       GCTGGGGAGAGCAGGAAGAGCGTACGTTGGGAGGCTCGGCAGAACCTTCGCTTGCCCCGA
101    AlaGlyGluSerArgLysSerValArgTrpGluAlaArgGlnAsnLeuArgLeuProArg  120

       GCGGCCAAGAATGTGATTCTCTTCATTGGCGACGGGATGGGCTGGAACACCCTCAACGCC
121    AlaAlaLysAsnValIleLeuPheIleGlyAspGlyMetGlyTrpAsnThrLeuAsnAla  140

       GCCCGCATCATCGCCAAAGGCTTTAACCCCGAAAACGGTATGCCCAACGGAAACCTCGAG
141    AlaArgIleIleAlaLysGlyPheAsnProGluAsnGlyMetProAsnGlyAsnLeuGlu  160

       ATCGAGAGTGGTTACGGTGGGATGGCTACCGTCACTACCGGCAGCTTTGATAGCTTCATC
161    IleGluSerGlyTyrGlyGlyMetAlaThrValThrThrGlySerPheAspSerPheIle  180

       GCCGACTCAGCTAACTCGGCTTCTTCCATCATGACCGGGCAGAAGGTGCAGGTGAATGCC
181    AlaAspSerAlaAsnSerAlaSerSerIleMetThrGlyGlnLysValGlnValAsnAla  200

       CTCAACGTTTACCCATCAAACCTCAAAGATACCCTGGCCTACCCCCGGATCGAAACCCTA
201    LeuAsnValTyrProSerAsnLeuLysAspThrLeuAlaTyrProArgIleGluThrLeu  220

       GCGGAGATGCTCAAGCGGGTACGCGGGGCCAGCATTGGGGTAGTGACCACCACCTTCGGC
221    AlaGluMetLeuLysArgValArgGlyAlaSerIleGlyValValThrThrThrPheGly  240

       ACCGACGCTACCCCGGCTTCACTCAACGCCCATACCCGCCGCCGCGGTGATTACCAGGCT
241    ThrAspAlaThrProAlaSerLeuAsnAlaHisThrArgArgArgGlyAspTyrGlnAla  260

       ATCGCCGACATGTACTTTGGTAGAGGCGGGTTCGGTGTTCCCTTGGATGTGATGCTCTTC
261    IleAlaAspMetTyrPheGlyArgGlyGlyPheGlyValProLeuAspValMetLeuPhe  280

       GGTGGTTCACGCGACTTCATCCCCCAGAGCACCCCTGGCTCGCGGCGCAAGGATAGCACG
281    GlyGlySerArgAspPheIleProGlnSerThrProGlySerArgArgLysAspSerThr  300

       GACTGGATTGCCGAATCCCAGAAGCTGGGCTACACCTTTGTCAGCACCCGCAGCGAGCTG
301    AspTrpIleAlaGluSerGlnLysLeuGlyTyrThrPheValSerThrArgSerGluLeu  320

       CTGGCGGCCAAACCCACCGATAAGCTGTTTGGGCTGTTCAACATTGACAACTTCCCCAGC
321    LeuAlaAlaLysProThrAspLysLeuPheGlyLeuPheAsnIleAspAsnPheProSer  340
```

FIGURE 6B

OC9a Phosphatase (27A3A)
Complete Gene Sequence (Part 2 of 2)

```
     TACCTAGACCGCGCAGTGTGGAAGCGGCCCGAGATGCTGGGAAGCTTTACCGATATGCCC
341  TyrLeuAspArgAlaValTrpLysArgProGluMetLeuGlySerPheThrAspMetPro   360

     TACCTCTGGGAGATGACCCAGAAAGCCGTGGAGGCTCTCTCCAGAAACGACAAAGGCTTT
361  TyrLeuTrpGluMetThrGlnLysAlaValGluAlaLeuSerArgAsnAspLysGlyPhe   380

     TTCTTGATGGTTGAGGGGGGAATGGTGGATAAGTACGAGCACCCCTTGGACTGGCCCCGC
381  PheLeuMetValGluGlyGlyMetValAspLysTyrGluHisProLeuAspTrpProArg   400

     GCACTTTGGGATGTACTCGAGCTGGACCGCGCGGTGGCTTGGGCCAAGGGCTATGCGGCC
401  AlaLeuTrpAspValLeuGluLeuAspArgAlaValAlaTrpAlaLysGlyTyrAlaAla   420

     TCCCACCCCGATACCCTGGTGATTGTCACCGCCGACCACGCTCACTCGATCTCGGTGTTT
421  SerHisProAspThrLeuValIleValThrAlaAspHisAlaHisSerIleSerValPhe   440

     GGCGGTTACGACTACTCCAAGCAGGGCCGGGAGGGGGTGGGGGTTTATGAGGCCGCCAAG
441  GlyGlyTyrAspTyrSerLysGlnGlyArgGluGlyValGlyValTyrGluAlaAlaLys   460

     TTCCCCACCTACGGCGACAAAAAAGACGCCAACGGCTTTCCCTTGCCCGACACCACTCGG
461  PheProThrTyrGlyAspLysLysAspAlaAsnGlyPheProLeuProAspThrThrArg   480

     GGAATCGCGGTAGGCTTCGGGGCCACGCCGGATTACTGTGAAACCTACCGGGGCCGCGAG
481  GlyIleAlaValGlyPheGlyAlaThrProAspTyrCysGluThrTyrArgGlyArgGlu   500

     GTCTACAAAGACCCCACCATCTCCGACGGCAAAGGTGGTTACGTGGCCAACCCTGAGGTC
501  ValTyrLysAspProThrIleSerAspGlyLysGlyGlyTyrValAlaAsnProGluVal   520

     TGCAAGGAGCCGGGCCTTCCAACGTACCGGCAACTCCCAGTAGATAGCGCCCAGGGCGTG
521  CysLysGluProGlyLeuProThrTyrArgGlnLeuProValAspSerAlaGlnGlyVal   540

     CACACGGCTGATCCCATGCCGCTGTTTGCCTTTGGCGTGGGGTCTCAGTTCTTCAATGGC
541  HisThrAlaAspProMetProLeuPheAlaPheGlyValGlySerGlnPhePheAsnGly   560

     CTCATCGACCAGACCGAGATCTTCTTCCGCATGGCCCAGGCCCTAGGGTTCAACCCCCAC
561  LeuIleAspGlnThrGluIlePhePheArgMetAlaGlnAlaLeuGlyPheAsnProHis   580

     CTCGAGAAGCCTTAA
581  LeuGluLysProEnd  585
```

FIGURE 7

M11 TL Phosphatase (29A1A=29A2A)
Complete Gene Sequence

```
       ATGTATAAATGGATTATTGAGGGTAAGCTTGCCCAAGCACCTTTTCCAAGCCTAGGTGAA
  1    MetTyrLysTrpIleIleGluGlyLysLeuAlaGlnAlaProPheProSerLeuGlyGlu    20

       CTAGCCGATCTCAAAAGACTTTTCGACGCCATTATTGTTCTTACAATGCCGCATGAACAA
 21    LeuAlaAspLeuLysArgLeuPheAspAlaIleIleValLeuThrMetProHisGluGln    40

       CCGCTTAATGAGAAATATATCGAGATATTAGAGAGCCATGGATTCCAAGTCCTCCATGTC
 41    ProLeuAsnGluLysTyrIleGluIleLeuGluSerHisGlyPheGlnValLeuHisVal    60

       CCCACGCTCGACTTTCATCCTTTAGAACTCTTCGACCTTTTGAAAACAAGCATATTCATT
 61    ProThrLeuAspPheHisProLeuGluLeuPheAspLeuLeuLysThrSerIlePheIle    80

       GATGAAAACCTGGAGAGATCCCACAGAGTGCTTGTCCACTGCATGGGAGGCATAGGCCGG
 81    AspGluAsnLeuGluArgSerHisArgValLeuValHisCysMetGlyGlyIleGlyArg   100

       AGCGGGCTTGTAACTGCTGCGTACTTAATATTCAAAGGTTATGATATTTACGACGCGGTA
101    SerGlyLeuValThrAlaAlaTyrLeuIlePheLysGlyTyrAspIleTyrAspAlaVal   120

       AAGCATGTGAGAACGGTAGTGCCTGGTGCTATTGAAAACAGAGGGCAAGCGTTAATGCTT
121    LysHisValArgThrValValProGlyAlaIleGluAsnArgGlyGlnAlaLeuMetLeu   140

       GAGAACTACTATACCCTGGTCAAAAGTTTCAACAGAGAGTTGCTGAGAGACTACGGGAAG
141    GluAsnTyrTyrThrLeuValLysSerPheAsnArgGluLeuLeuArgAspTyrGlyLys   160

       AAAATTTTCACGCTCGGTGACCCGAAGGCGGTTCTCCACGCTTCTAAGACGACTCAGTTC
161    LysIlePheThrLeuGlyAspProLysAlaValLeuHisAlaSerLysThrThrGlnPhe   180

       ACGATTGAACTCTTAAGCAACTTACACGTCAACGAGGCGTTTTCAATCAGTGCGATGGCT
181    ThrIleGluLeuLeuSerAsnLeuHisValAsnGluAlaPheSerIleSerAlaMetAla   200

       CAATCACTGCTCCACTTTCACGACGTAAAAGTCCGCTCTAAACTGAAAGAAGTATTCGAA
201    GlnSerLeuLeuHisPheHisAspValLysValArgSerLysLeuLysGluValPheGlu   220

       AACATGGAATTCTCATCCGCCTCAGAGGAGGTTCTGTCATTTATTCACCTACTCGATTTC
221    AsnMetGluPheSerSerAlaSerGluGluValLeuSerPheIleHisLeuLeuAspPhe   240

       TATCAGGATGGCAGGGTTGTTTTAACCATTTACGATTATCTCCCCGATAGGGTGGATTTG
241    TyrGlnAspGlyArgValValLeuThrIleTyrAspTyrLeuProAspArgValAspLeu   260

       ATTTTATTGTGTAAGTGGGGTTGTGATAAAATAGTTGAAGTCTCGTCTTCAGCGAAGAAA
261    IleLeuLeuCysLysTrpGlyCysAspLysIleValGluValSerSerSerAlaLysLys   280

       ACCGTTGAGAAGCTTGTAGGAAGAAAGGTTTCCCTATCCTGGGCTAATTACTTAGACTAT
281    ThrValGluLysLeuValGlyArgLysValSerLeuSerTrpAlaAsnTyrLeuAspTyr   300

       GTTTAG
301    ValEnd   302
```

FIGURE 8

Thermococcus CL-2 Phosphatase (30A1A)
Complete Gene Sequence

```
    ATGAGAATCCTCCTCACCAACGACGACGGCATCTATTCCAACGGTCTGCGCGCGGCGGTG
1   MetArgIleLeuLeuThrAsnAspAspGlyIleTyrSerAsnGlyLeuArgAlaAlaVal   20

    AAGGGCCTGAGCGAGCTCGGCGAGGTCTACGTCGTCGCCCCGCTCTTCCAGAGGAGCGCG
21  LysGlyLeuSerGluLeuGlyGluValTyrValValAlaProLeuPheGlnArgSerAla   40

    AGCGGTCGGGCGATGACCCTACACAGGCCGATAAGGGCAAAGAGGGTTGACGTTCCCGGC
41  SerGlyArgAlaMetThrLeuHisArgProIleArgAlaLysArgValAspValProGly   60

    GCGAAGATAGCGTATGGCATAGACGGAACGCCGACCGACTGCGTGATTTTTGCCATCGCC
61  AlaLysIleAlaTyrGlyIleAspGlyThrProThrAspCysValIlePheAlaIleAla   80

    CGCTTCGGCGACTTTGATCTGGCGGTCAGCGGGATAAACCTAGGCGAGAACCTGAGCACG
81  ArgPheGlyAspPheAspLeuAlaValSerGlyIleAsnLeuGlyGluAsnLeuSerThr  100

    GAGATAACCGTCTCCGGAACGGCCTCGGCGGCGATAGAGGCTTCCACCCACGGGATTCCA
101 GluIleThrValSerGlyThrAlaSerAlaAlaIleGluAlaSerThrHisGlyIlePro  120

    AGTGTAGCTATAAGCCTCGAGGTCGAGTGGAAGAAGACCCTCGGCGAGGGGGAGGGTATT
121 SerValAlaIleSerLeuGluValGluTrpLysLysThrLeuGlyGluGlyGluGlyIle  140

    GACTTCTCGGTTTCAGCACACTTCCTGAGAAGGATAGCGACGGCTGTCCTTAAGAAGGGC
141 AspPheSerValSerAlaHisPheLeuArgArgIleAlaThrAlaValLeuLysLysGly  160

    CTGCCTGAAGGGGTGGACATGCTCAACGTGAACGTCCCTAGCGACGCCAGCGAGGGGACT
161 LeuProGluGlyValAspMetLeuAsnValAsnValProSerAspAlaSerGluGlyThr  180

    GAGATCGCCATAACGCGCCTCGCGAGGAAGCGCTATTCTCCGACGATAGAGGAGAGGATA
181 GluIleAlaIleThrArgLeuAlaArgLysArgTyrSerProThrIleGluGluArgIle  200

    GACCCCAAGGGCAACCCCTACTACTGGATCGTTGGCAGGCTCGTCCAGGAGTTCGAGCCG
201 AspProLysGlyAsnProTyrTyrTrpIleValGlyArgLeuValGlnGluPheGluPro  220

    GGCACGGACGCCTACGCTCTGAAAGTCGAGAGAAAGGTCAGCGTCACGCCCATAAACATC
221 GlyThrAspAlaTyrAlaLeuLysValGluArgLysValSerValThrProIleAsnIle  240

    GACATGACTGCGAGGGTTGACTTTGAGAACCTTCAAAGGCTTCTGAGCCTGTGA
241 AspMetThrAlaArgValAspPheGluAsnLeuGlnArgLeuLeuSerLeuEnd   258
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FIGURE 9

Aquifex VF-5 Phosphatase (34A1A)
Complete Gene Sequence

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    ATGGAAAACTTAAAAAAGTACCTAGAAGTTGCAAAAATAGCCGCGCTCGCGGGTGGGCAG
1   MetGluAsnLeuLysLysTyrLeuGluValAlaLysIleAlaAlaLeuAlaGlyGlyGln   20

    GTTCTGAAAGAAAACTTCGGAAAGGTAAAAAAGGAAAACATAGAGGAAAAAGGGGAAAAG
21  ValLeuLysGluAsnPheGlyLysValLysLysGluAsnIleGluGluLysGlyGluLys   40

    GACTTTGTAAGTTACGTGGATAAAACTTCAGAGGAAAGGATAAAGGAGGTGATACTCAAG
41  AspPheValSerTyrValAspLysThrSerGluGluArgIleLysGluValIleLeuLys   60

    TTCTTTCCCGATCACGAGGTCGTAGGGGAAGAGATGGGTGCGGAGGGAAGCGGAAGCGAA
61  PhePheProAspHisGluValValGlyGluGluMetGlyAlaGluGlySerGlySerGlu   80

    TACAGGTGGTTCATAGACCCCCTTGACGGCACAAAGAACTACATAAACGGTTTTCCCATC
81  TyrArgTrpPheIleAspProLeuAspGlyThrLysAsnTyrIleAsnGlyPheProIle  100

    TTTGCCGTATCAGTGGGACTTGTTAAGGGAGAAGAGCCAATTGTGGGTGCGGTTTACCTT
101 PheAlaValSerValGlyLeuValLysGlyGluGluProIleValGlyAlaValTyrLeu  120

    CCTTACTTTGACAAGCTTTACTGGGGTGCTAAAGGTCTCGGGGCTTACGTAAACGGAAAG
121 ProTyrPheAspLysLeuTyrTrpGlyAlaLysGlyLeuGlyAlaTyrValAsnGlyLys  140

    AGGATAAAGGTAAAGGACAATGAGAGTTTAAAGCACGCCGGAGTGGTTTACGGATTTCCC
141 ArgIleLysValLysAspAsnGluSerLeuLysHisAlaGlyValValTyrGlyPhePro  160

    TCTAGGAGCAGGAGGGACATATCTATCTACTTGAACATATTCAAGGATGTCTTTTACGAA
161 SerArgSerArgArgAspIleSerIleTyrLeuAsnIlePheLysAspValPheTyrGlu  180

    GTTGGCTCTATGAGGAGACCCGGGGCTGCTGCGGTTGACCTCTGCATGGTGGCGGAAGGG
181 ValGlySerMetArgArgProGlyAlaAlaAlaValAspLeuCysMetValAlaGluGly  200

    ATATTTGACGGGATGATGGAGTTTGAAATGAAGCCGTGGGACATAACCGCAGGGCTTGTA
201 IlePheAspGlyMetMetGluPheGluMetLysProTrpAspIleThrAlaGlyLeuVal  220

    ATACTGAAGGAAGCCGGGGGCGTTTACACACTTGTGGGAGAACCCTTCGGAGTTTCGGAC
221 IleLeuLysGluAlaGlyGlyValTyrThrLeuValGlyGluProPheGlyValSerAsp  240

    ATAATTGCGGGCAACAAAGCCCTCCACGACTTTATACTTCAGGTAGCCAAAAAGTATATG
241 IleIleAlaGlyAsnLysAlaLeuHisAspPheIleLeuGlnValAlaLysLysTyrMet  260

    GAAGTGGCGGTGTGA
261 GluValAlaValEnd  265
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